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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,545	02/22/2002	Michael Rondinelli	TELE 50464	2005
7590	12/09/2004		EXAMINER HUNG, YUBIN	
Robert P. Lenart Pietragallo, Bosick & Gordon One Oxford Centre, 38th Floor 301 Grant Street Pittsburgh, PA 15219			ART UNIT 2625	PAPER NUMBER

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/081,545	RONDINELLI, MICHAEL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Yubin Hung	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3 thru 12/5/03</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5, 9, 11-14, 17 and 18 are rejected under 35 U.S.C. 102(e) as being unpatentable over Aharon (US 6,345,129) and Teo (US 6,246,413).

3. Regarding claim 1, and similarly claim 12, Aharon discloses

- creating a destination image file buffer  
[Fig. 3, refs. 202-204; Col. 8, lines 1-5]
- mapping the pixel data from the source image file to the destination image file buffer  
[Fig. 3, refs. 202-204; Col. 7, lines 56-63; Col. 8, lines 1-5]

Aharon does not disclose expressly

- outputting the pixel data from the destination image file buffer as a destination image file

However, Teo teaches/suggests outputting the pixel data from the destination image file buffer as a destination image file. [Fig. 2, refs. 202, 214, 218; Col. 8, lines 41-49. Note that pixels data are inherently stored as image files in a permanent memory.]

Aharon and Teo are combinable because they have aspects that are from the same field of endeavor of image transformation.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Aharon with the teaching of Teo by outputting the pixel data from the destination image file buffer as a destination image file. The motivation would have been to be able to store the mapped data on a permanent basis so that they can be retrieved later for further processing or be distributed to interested party.

Therefore, it would have been obvious to combine Teo with Aharon to obtain the invention of claim 1.

4. Regarding claim 2, and similarly claim 13, Aharon further discloses

- defining a first set of coordinates of pixels in the destination image file  
[Fig. 3, refs. 202-204; Col. 7, lines 57-58. Note that the first set of coordinates is rectangular]
- defining a second set of coordinates of pixels in the source image file  
[Fig. 3, refs. 202-204; Col. 7, lines 62-63. Note that the second set of coordinates is spherical]
- identifying coordinates of the second set that correspond to coordinates of the first set  
[Fig. 3, refs. 202-204; Col. 8, lines 6-22]
- inserting pixel data for pixel locations corresponding to the second set of coordinates into pixel locations corresponding to the first set of coordinates  
[Fig. 3, refs. 202-204; Col. 8, lines 1-5]

5. Regarding claim 3, and similarly claim 14, Aharon further discloses

- the first set of coordinates are spherical coordinates and the second set of coordinates are rectangular coordinates  
[Fig. 3, refs. 202-204; Col. 7, lines 62-63]

6. Regarding claim 5, and similarly claim 17, Aharon further discloses

- interpolating the source image pixel data to produce pixel data for the destination image file buffer  
[Fig. 3, refs. 202-204; Col. 8, lines 15-22]

7. Regarding claims 9, and similarly claim 18, Teo further discloses

- source image file comprises a panoramic projection image file  
[Fig. 1A, refs. 112, 118, 120; Col. 7, lines 27-46]

8. Regarding claim 11, Teo further discloses

- the step of mapping the pixel data from the source image file to the destination image file buffer includes the step of: creating a job function that controls the mapping step  
[Fig. 2, refs. 202, 212; Col. 8, lines 41-46. Note the set of instructions effecting the transform (i.e., mapping) constitutes a job]

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9. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aharon (US 6,345,129) and Teo (US 6,246,413), as applied to claims 1-3, 5, 9, 11-14, 17 and 18 above, and further in view of Shively (US 5,748,860).

Regarding claim 4, and similarly claim 15, the combined invention of Aharon and Teo discloses/suggests all limitations of its parent, claim 1.

The combined invention of Aharon and Teo does not disclose expressly

- adding border pixel data to the source image file

However, Shively teaches/suggests mapping adding border pixel data to the image to facilitate interpolation. [Col. 16, lines 30-33.]

The combined invention of Aharon and Teo is combinable with Shively because they have aspects that are from the same field of endeavor of image transformation.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Aharon and Teo with the teaching of Shively by mapping adding border pixel data to the image. The motivation would have been to facilitate interpolation, as indicated by Shively in Col. 16, lines 30-33.

Therefore, it would have been obvious to combine Shively with Aharon and Teo to obtain the invention of claim 4.

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10. Claims 6, 7, 10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aharon (US 6,345,129) and Teo (US 6,246,413), as applied to claims 1-3, 5, 9, 11-14, 17 and 18 above, and further in view of Szeliski et al. (US 6,009,190).

11. Regarding claim 6, the combined invention of Aharon and Teo discloses/suggests all limitations of its parent, claim 1.

The combined invention of Aharon and Teo does not disclose expressly

- the source image file includes pixel data from a plurality of images, and
- the step of mapping pixel data from the source image file to the destination image file buffer comprises the steps of:  
sequentially mapping pixel data from the plurality of images to the destination image file buffer

However, Szeliski teaches/suggests mapping multiple images to spherical coordinates.

[Fig. 1; Col. 5, lines 19-34; Col. 7, lines 19-44; Col. 32, lines 4-8.]

The combined invention of Aharon and Teo is combinable with Szeliski because they have aspects that are from the same field of endeavor of image transformation.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Aharon and Teo with the teaching of Szeliski by collecting multiple images and mapping those images to spherical coordinates. The motivation would have been to capture images that cover a large field of view as desired, as indicated by Aharon in Col. 5, lines 19-21].

Therefore, it would have been obvious to combine Szeliski with Aharon and Teo to obtain the invention of claim 6.

12. Regarding claim 7, Szeliski further discloses

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- the source image file comprises duplicated pixel data corresponding to pixels in an overlapping region of an image  
[Fig. 1: ref. 130; Col. 7, lines 28-31. Note that the input image file composes of images  $I_0 \dots I_k$  (as shown in Fig. 1) and Col. 7, lines 28-31 indicate the existence of overlapping]]

13. Regarding claim 10, and similarly claim 19, Szeliski further discloses

- destination image file comprises one of: a cylindrical panoramic projection image file, a perspective panoramic projection image file, an equirectangular panoramic projection image file, and an equiangular panoramic projection image tile  
[Col. 5, lines 30-32.]

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14. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aharon (US 6,345,129), Teo (US 6,246,413) and Shively (US 5,748,860) as applied to claims 4 and 15 above, and further in view of Hahn et al. (US 5,307,452).

Regarding claim 8, and similarly claim 16, the combined invention of Aharon, Teo and Shively discloses all limitations of their respective parents, claim 1 and claim 15.

The combined invention of Aharon, Teo and Shively does not disclose expressly

- the pixel data in the source image file includes opacity data

However, Hahn teaches/suggests including an opacity value for each pixel of the source image. [Fig. 1, ref. 13; Col. 10, lines 15-16.]



The combined invention of Aharon, Teo and Shively are combinable with Hahn because they have aspects that are from the same field of endeavor of image transformation.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Aharon, Teo and Shively with the teaching of Hahn by including an opacity value for each pixel of the source image. The motivation would have been to be able to create a sense of transparency so as to achieve a realistic visual effect.

Therefore, it would have been obvious to combine Hahn with Aharon, Teo and Shively to obtain the invention of claim 8.

### ***Contact Information***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (703) 305-1896. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung  
Patent Examiner  
December 2, 2004



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